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ABSTRACT

This is a review of concepts based upon scientific evidence and observation that may prove helpful to the athletic coach of any age group, any skill level, either sex, and in any environment. It is written with the belief that athletics should exist for athletes and that the coach should be the person who assists the athlete to gain individual excellence and self-fulfillment through sports. The "ultimate athlete," discussed in this review, needs a coach who knows physiology, body mechanics, learning theory, growth and development, motor learning, and social psychology. Particular concepts and implications of (1) motor development, (2) motor learning, and (3) social psychology relevant to coaching are examined. Concepts of motor development drawn from developmental psychology point out that the athlete is a product of both his heredity and his environment; although heredity sets limits, environment and experience offer avenues for the full development of potential. Further, an individual's readiness to learn a skill is dependent upon physical maturity, neuromuscular abilities, previous experiences, and motivation. Motor development concepts also alert the coach to the fact that there is a period of optimum readiness for the acquisition of certain motor skills. From the areas of motor learning and educational psychology the coach is faced with many concepts with direct implication for the improvement through coaching. A basic concept underlying skill development is that motor learning is a relatively permanent change in motor development and that performance is but a single manifestation for this process of change. Social psychology enlightens understanding of social influences on behavior in the areas of the female athlete, the problem athlete, racial tensions, team morale, crowd behavior, and other athletic problems that arise when people interact with other people. (MM)

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PSYCHOLOGICAL ASPECTS OF COACHING

Presentation to Southern District Joint Meeting of Men's Athletic Council and the Secondary School Physical Education Council. Friday, March 19, 1976. Hally B. W. Poindexter.

The topic which I have been asked to address, Psychological Aspects of Coaching, allows great latitude in the selection and presentation of materials. Undoubtedly, each of you has come with a preconceived notion, and a personal interest, relative to the topics to be discussed. Perhaps a survey of interests and problems prior to this meeting might have afforded me the benefit of your concerns, but without that benefit, I must proceed.

In recent months, perhaps precipitated by Title IX, or by the entrance of scholarly writers, such as George Leonard, into the arena of athletic interest, you have been inundated with literary treatises, opinionated emotional appeals, and an increasing amount of scientific evidence which provides new insights into athletes and athletics -- their ills and their salvation. The literature is both cursory and detailed and covers a myriad of topics for both the active athletic participant and the coach. The reports cover techniques of hypnosis, personality assessment of players and coaches, motivation theory applicable to the manipulation of athlete or coach, group dynamics, and even biofeedback training proposed as the greatest and most promising technique for unleashing the potential of the individual athletic performer. The list continues with suggestions for better coach-athlete relations, successful crowd control, techniques for relief of competitive

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stress, modes for reduction of racial tensions, and above all -- solutions to the problems of the emerging female athlete.

The writers and researchers are well intentioned and their publications and speeches are easily accepted by coaches eager for any and all suggestions which might provide an edge -- the winning edge -- in athletic competition. So numerous are these solutions that I am reminded of "Dear Abby" or "Dr. Brothers." Perhaps a daily syndicated column directed to the coach who would think breakfast incomplete until he had savored the wisdom of the columnist who would assure him of the ways and grant him the wisdom to encounter his players each day. Such a column, entitled "Game Gimmickery," "Saleable Solutions," or even "Winning Wizardry" would soon capture sports page highest ratings, second only to the World Series and Superbowl coverage. Enough of jest, for many of the articles proffer sound ideas and concepts -- concepts that work when put into an effective setting because they are founded on scientific principles of human behavior.

Thus the approach to "psychological aspects of coaching" will be a review of concepts based upon scientific evidence and observation that can prove helpful to the coach -- the coach of any age group, any skill level, both sexes and in any environment. One word of caution, just as a researcher begins a scientific study with a research bias, I begin this presentation with a prejudice which I should share with you. I believe athletics should exist for athletes and that the coach should be the

person who assists the athlete to gain individual excellence and self-fulfillment through sports. My "ultimate athlete" needs the coach who knows physiology, body mechanics, learning theory, growth and development, motor learning and social psychology to guide him to his objective. The objective is the "ultimate athlete."

A review of the terms we will be using seems necessary. Coaching, as I will view it, implies teaching and leadership. Specifically, the coach is the individual who accompanies and attempts to aid in the improvement of the athlete. The coach must also be administrator of facilities, funds, and equipment; however, for our purposes we will deal with coaching in terms of people -- individually or in groups.

The phrase "psychological aspects" has two obvious parts -- psychology, the study of human behavior and specifically sport psychology,* the rubric under which the subunits of motor development, motor learning and social psychology fall. The term "aspects" I have interpreted to mean the empirical knowledge and planned social psychological observations related to individuals which have potential meaning for and influence on the coach or the coached athlete.

We may now turn to an examination of the concepts and implications of 1) motor development, 2) motor learning and 3) social psychology relevant to coaching.

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*As Rainer Martens notes, sport psychology is probably a misnomer for the subunits study movement in contexts other than sports.

Concepts of Motor Development

Motor development is an area of basic concern for both the teacher and the coach; however, the coach often feels less concern for concepts of growth and development for he sees the more physically mature students in his profession. There is psychological importance and it rests in the realization that the athlete is subject to the same growth and development patterns as are all humans. The athlete is a product of both his heredity and his environment, and although heredity sets limits on his potential development, environment and experience offer avenues for the full development of this potential.

Further, developmental psychology points out that an individual's readiness to learn a skill is dependent upon his physiological maturity, his neuromuscular abilities, his previous experiences, and his motivation. These points are important in assessing the so-called "natural athlete," who in actuality is one who blends maturity, experience, practice, and motivation with excellent neuromuscular potential. This "natural athlete" is also a product of learning.

Developmental concepts also alert the coach to the fact that there is doubtless a "best time" to acquire certain specific motor skills and the coach of young students must be patient with the seeming delay in achieving and individual's potential. With that brief consideration for motor development, we will now turn to the concepts of motor learning.

Concepts of Motor Learning

From the areas of motor learning and educational psychology the coach is faced with a plenthora of concepts with direct implication for the improvement of skill, as well as concepts which suggest techniques to enhance this skill development through coaching.

A basic concept underlying skill development is that motor learning is a relatively permanent change in motor development and performance is but a single manifestation of this process of change. Performance is the best way we have to assess learning, yet it is a fallible measure, for performance fluctuates in response to environmental conditions, the performer's state of health, the performer's emotional state, or even the emotional and physical state of the coach. Stabilizing performance is one of the persistent challenges of the coaching profession.

1. Concept:

It is widely agreed that the only real learning is self learning. It seems unlikely that learning can be imposed upon the athlete -- he must be involved in the process and the learning act. It is clear that each individual learns in his own way, thus we have various methods and approaches to reach each learner no matter what his background, perception of the task, or importance he attaches to the task to be learned.

2. Concept:

A corollary to the concept of self learning is the uniqueness of motor learning as a doing task. It has been found that following

an observation of a demonstration or following modeling, only the simplest of motor responses can be performed without prior physical practice. Complex tasks require practice and skill replication. There is no better way to learn a motor task than to do it.

3. Concept:

In the development of motor skills the coach should attempt to insure that the performer's early trials should be as accurate as possible. Thereafter, practice of the task should be as perfect as possible. "Practice makes perfect only if it replicates a perfect, or near perfect, act." As every coach has frequently observed, and research evidence supports, replication of incorrect motor responses tends to habituate faulty movement patterns. As a coach you are well aware that once faulty movement skills are established, it is more difficult to eradicate these faulty patterns in terms of time and effort than it would have been to create new, more complex skills. To establish new patterns one must eradicate the old (teach to extinction) and then establish new responses in place of the old. These newer "overlay" skills, if I may use that term, frequently deteriorate under competitive stress and the older, more established, faulty skills reappear. Overlearning and testing the new skills in a variety of situations are the best assurances of establishing consistent, replicable patterns as will be noted in the next two concepts.

4. Concept:

Overlearning a skill results in greater retention and better retention under distracting influences. The concept of overlearning

offers a strong empirical base for the coach who insists upon fundamentals -- fundamentals so habituated that even the most intense anxieties and competitive stress cannot destroy the patterns of execution. The importance of the process of over-learning implies it should be practiced as seriously and as exactly as the early learning experiences.

5. Concept:

The concept of variability implies that once an athletic skill has been mastered it should be practiced under varied conditions approximating the actual game or competitive situation. Shooting baskets against a defender, scrimmaging in a crowded and noisy gynmasium, hitting golf balls from various lies in all types of weather are but a few examples that point up the need to practice skills as they will be used so that performance is adaptable to numerous circumstances rather than restricted to an inflexible pattern.

6. Concept:

The rate of learning varies with the individual. Rate is influenced by many variables, but only one theory will I speak to at this point. A rapid initial rate of learning does not necessarily indicate that the learner will continue at a rapid rate, nor does it indicate that he will learn more than others throughout the learning experience. In complicated competitive athletic skills there seems to be a hierarchy of sub-skills and sub-strategies to be learned and a learner may attain one level with great speed but have greater difficulty with the skills or the strategy concepts at other levels. Synthesis time, the time

or rate of progress between one hierarchial level and the next, also varies during a learning task. Even as the rate varies -- perhaps slower than the coach feels is desirable, the athlete should be encouraged to continue for a "breakthrough" is often right beyond the next practice session.

7. Concept:

Knowledge of results (KR) is imperative to learning. KR, often referred to as "Feedback" (from computer analogs) is an integral part of the coaching task if performance is to be improved. Fortunately in almost all sports performance, KR results from either intrinsic feedback or extrinsic feedback. Intrinsic feedback is that which is internal to the performer and is gained from proprioception (kinesthesis) or "feel" of the skill execution. External feedback includes knowledge of the score, awareness that the basketball goal was made on the last attempt, that the golf ball landed cleanly on the green, and that the arrow clearly struck the gold of the target. Such external information is generally gained by the performer from visual and auditory input -- it comes from without but is quickly integrated by the learner.

Some few motor tasks do not provide feedback as a consequence of behavior or the feedback from performance is incomplete. In these cases, if learning is to continue, the coach must devise aids or must personally serve as an augmentor to provide the athlete with information regarding the consequences of his behavior. Few studies have been reported on augmented feedback using gross

motor skills; however, those that have been accomplished support the need for providing the learner with knowledge of his behavior. Howell* (1956) constructed a recording device that enabled inexperienced runners to compare graphs made by the force of their feet against starting blocks against graphs made by experienced sprinters. Another group of subjects, the control group, did not receive this information. The first group successfully learned the force-time patterns and improved their speed and momentum; the second group made very little improvement. Fitts* has suggested that augmented feedback may be particularly useful for highly skilled athletes at the time when the learner is nearing his hypothetical limit of ability to discriminate available feedback. Augmented feedback is particularly useful at this time "because of the more precise information it provides to the learner."

Knowledge of results is obviously gathered in a myriad of ways -- through coaching analysis and comments, peer evaluation, video tape and photographic assessment, self analysis and kinesthesis. A summary of research findings of specific interest to the coach indicates:

A. Learning is proportionately greater as the quality and precision of knowledge of results increases.

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*Howell, Max L. Research Quarterly. Use of Force-Time Graphs for Performance Analysis in Facilitating Motor Learning. 27, 12-22.

*Fitts, P. M. "Factors in Complex Skill Training," Training Research and Education. University of Pittsburg Press, 1962.

B. When feedback is delayed, performance declines.

C. When KR is withdrawn, performance declines.

D. Continuous and complete KR fosters greater learning than does feedback which is incomplete.

E. Definitive information, such as shot percentages and action films, which makes it possible to compare the learner's performance with those of better ability seems to increase learning.

F. Incorrect feedback retards learning and performance.

8. Concept:

Learning mechanical principles has value for advanced learners. Teaching mechanical principles seems to have little value for those of low skill level and beginning performance level since they are unable to incorporate theoretical knowledge into performance; however, knowledge of these mechanical principles may be helpful for more advanced athletes for they have experienced performance. Needless to say, knowledge of mechanical principles applicable to movement skills or task stucture (such as angle of basketball rebound or the trajectory of objects propelled under water) is valuable for the coach in analyzing the motor acts of the performers.

9. Concept:

Skills which require speed plus accuracy (or precision) should be taught with emphasis on both speed and accuracy. In

practice sessions the speed of execution should approximate the normal pattern of the skill without causing deterioration of accuracy or endangering the safety of the performer. In the past, attempts have been made to emphasize accuracy in the skill initially and to add speed of execution later. Other researchers and coaches have emphasized speed, with accuracy developed later. It has been determined that breaking a skill into speed and accuracy components is actually increasing learning time because two skills, rather than one, must be learned. As soon as possible and as often as possible, the combined speed-accuracy tempo should be practiced under game-like conditions.

10. Concept:

The order of presentation of skills taught during the athletic season is important. When new skills that are similar are taught in close proximity to each other there is the possibility that one skill will interfere with the other. The newly acquired skill may interfere with the retention of the older skill (retroactive inhibition), or the older skill may inhibit learning of the newer one (proactive inhibition). When teaching a number of new skills at one practice session, it is desirable that they be as dissimilar as possible. Once a skill has been mastered and overlearning begun, other skills similar to it may be presented, using similarities and dissimilarities between the two skills as reference points for the purposes of transfer of learning.

11. Concept:

Transfer of learning implies the ability to apply previous

learning from one skill to another task. Although some theorists believe in learning every act or skill specifically, most feel that some transfer of isolated skills or concepts must occur, otherwise every new experience would require complete learning. It appears that identical elements within different tasks transfer, and there may be previously developed bases of both motor and nonmotor knowledge and ability which help in the learning of new skills. Transfer may be positive; that is, a learner responds to a new task using an already learned pattern, or negative, in which the athlete is asked to make a different response from that already learned. The greatest possibility for positive transfer occurs when the learner is aware of the opportunity for transfer. It may occur more easily if the coach points out the similarities in the two responses and the athlete's attention is directed to cues that enhance transfer opportunities. Such an example would be focusing on position and start of a wide offensive end in football who had experience with a standing start as a middle distance runner.

12. Concept:

There are many considerations for planning practices that positively influence learning and performance of athletic skills. Research results have produced inconclusive evidence on the most desirable length of practice periods, frequency of practice periods and the best time of day for practice. The answers seem to vary with the age of the learner, the complexity and strenuousness of the skill, the level of performance, the experiential background of the athlete and the environmental conditions.

Limited research and considerable practical evidence indicate that beginners profit more from shorter practice periods spaced over an extended period of time. Daily practices, or even more than once a day, may be desirable if the activity is not too exhausting. If the practice is exhausting, learning can still take place but performance deteriorates, and as the deterioration begins the coach runs the risk of habituating inaccurate skills as the practice continues.

Highly motivated learners can endure longer practice periods, as can those athletes of high skill level. Difficult tasks seem to require periods of synthesis which may be best accomplished by short, frequent practices spaced over a relatively long period of time. Much practice is needed in varied situations with complex skills (as noted when discussing variability) so that automatic performance will result in varying environments. Practice sessions of relatively constant length seem to produce more learning than regular increases and decreases in succeeding sessions. Short rest periods during practice sessions tend to increase the amount of learning.

13. Concept:

Mental practice is a valuable supplement to physical practice. Thinking about skill replication and creating mental imagery is known as mental practice or mental rehearsal. Thinking through and mentally performing a well rehearsed skill in between physical practice trials can be of help in establishing motor patterns. The effectiveness of this technique varies

with the nature of the skill practiced and the learner's ability to successfully practice mentally. For the skilled athlete research indicates:

1. Engaging in mental practice produces quicker learning than simply observing a task.

2. Mental practice is most effective and probably most necessary with a complex task, such as pole vault, a 1½ from the one meter board, and many gymnastic routines.

Practice effects from mental practice are of negligible value in the improvement of strength and endurance.

Mental practice should not be substituted for physical practice for the effects of mental practice have not been found to exceed physical practice of the task; however, it appears that a combination of mental and physical practice may produce greater learning effects than physical practice alone. This implies that mental replication is efficient and conceptually correct.

A comment or addendum may be appropriate at this point. There are rumblings, not evidenced in the literature of athletes and coaches in quantity or depth at this time, that are beginning to relate mental practice and rehearsal with the techniques of transcendental meditation and biofeedback training for athletic improvement. Unquestionably, we have raised the questions of their value in our search for the "winning

edge;" it is only a matter of time until some of you undertake serious investigations.

14. Concept:

The field of motor learning has also afforded us information concerning the methods of teaching athletic skills and strategy. For example, there is increasing evidence that there is a change in factor patterns or ability patterns as one improves in his skill performance. Abilities, such as a given amount of strength, endurance, movement time and coordination, that were important for early success in a complex skill are not necessarily the same as those contributing to success in the same complex skill at a higher skill level. Assuming the change of factors to be worthy of consideration, the performer's level of skill will require different teaching methods and learning considerations on the part of the coach.

Although athletic coaches do not work with beginners, theoretically, we all know that the young athlete begins with someone at some point and perhaps a few words about the beginner will not be too repetitive. The beginning athlete's lack of understanding and experience in the skill indicate a need for special methodological considerations. The beginner needs to be given the "big picture" of the purpose and nature of the sport. He needs to experience the skill as rapidly as possible and get involved in the "doing." The coach should avoid lengthy verbal descriptions and precise details of form and execution at the onset. If the skill is too complex as a whole, the

simpler skills can be taught by the "whole method;" later the necessary refinement can be accomplished. Although there has been much debate in psychological literature about the relative value of "whole" and "part" methods of teaching skills, primarily because of inconsistency of definition of "whole" and "part" but the consensus seems to be that when possible, it is better to use the "whole" method. The interpretation by Ryan when analyzing the work of two British psychologists, Annett and Kay, may clarify the situation:(13-35)

"They point out that there are two types of tasks: (1) those in which the responses of the performer do not influence the task to be learned, and (2) those in which the performers' responses directly influence the task. An example of the first type would be picking up objects off a conveyer belt. An example of the second type of task in everyday life would be driving an automobile. Steering, shifting, etc. change the task from one instant to the next. In athletics an example of the first type of skill might be hitting a golf ball. Nothing the perfomer does will influence the ball before it is hit. An example of the second type of skill might be a wrestling hold. In this situation the interaction of the wrestler and his opponent (or partner) changes the skill from one trial to the next, until it leaves the learner in a position of attempting to master a new and different skill on each trial. In the first instance, where the task could be repeated without change, the "whole method" would be superior to the "part." In the second instance, where the performers' actions change the skill from trial to

trial, it is probable that the skill should be taught by the "part method," so that errors in the parts may be eliminated and variability decreased; otherwise the learner is in the difficult position of learning a nonrecurring series of events."

Research in motor learning tells us that the more advanced learner, that is, the skilled athletic performer, is familiar with and conditioned for the specific skill. He makes fewer random movements and becomes less fatigued in skill execution. His energy is used for practice and performance and is not dissipated through tension and unproductive movements. The more advanced learner is less easily distracted by outside stimuli, and he has little difficulty concentrating and recognizing cues for action or alteration of performance. His vocabulary of the skill has increased and is helpful in understanding instruction, coaching cues, mental planning and retention. Skills become generalized at higher levels; allowing for more adaptation and variation of performance in different settings. Greater variations among individuals are noticed by the coach and it now becomes a coaching responsibility to aid each person in finding his most efficient form, practice procedure and style of play. For the coach this implies that the advanced performer can experience meaningful drill on parts of the total skill for he is able to fill in the other parts of the act mentally.

The more advanced performer can endure longer practice sessions without fatiguing, he is capable of some self analysis, but he is much more able to synthesize coaching analysis and

that of mechanical aids. We have noted that his patterns of skill performance are habituated but they must be rehearsed until they are automatic before using them in experiences requiring peak performance. We have also noted the value of mental rehearsal for the advanced athlete for he has a good image of his movements and the skills he must execute; however, he must review physical skills often if he is to maintain a high level of performance. In essence, advanced learning emphasizes the perception of what to do, and much of the adjustment is transferable from previous motor and nonmotor experiences. Verbal and kinesthetic cues are important at higher levels of performance and perception of cues results in movement adaptation from feedback.

With this look at the psychological aspects of motor learning and learning theory we now must examine the concepts of social psychology which have implications for athletes and coaches.

Concepts of Social Psychology

McGrath defines social psychology as the "Scientific study of human behavior as influenced by the presence, behavior and products of other human beings, individually and collectively, past, present and future." (7) Social influence relations may occur in one of three forms: (1) person to person interaction; (2) person to group interaction; (3) group to group interaction. In other words, social psychology attempts to understand the process of social influence on behavior. Clearly, it is in this

realm that we seek answers to the problem athlete, racial tensions, team morale, crowd behavior, and all other athletic problems that arise when people interact with other people.

1. Concept:

Social facilitation impacts on athletic performance. It was in 1897 that Norman Triplett, a cycling enthusiast and social scientist, tested individuals over a 25 mile cycle course, first racing against time and then against another person. He found that the presence of another person consistently cut time, approximately 5 seconds per mile more than when racing against time. Thus social facilitation, the impact on individual behavior resulting from the presence of another individual, came into prominence. Social facilitation usually refers to any increment in behavior and performance; however, there can also be social impairment or inhibitory effects related to the presence of others. The importance to coaching became obvious following Zajonc's studies noting both positive and negative effects as a consequence of the presence of others. Two experimental conditions, known as the (1) audience effect and the (2) coaction effect have direct meaning for athletic coaching. The audience effect refers to behavior changes resulting from the presence of passive spectators. The coaction effect refers to behavioral changes resulting from the presence of individuals doing the same thing at the same time. Most research supports Zajonc's findings that on simple tasks that require very little learning the presence of others resulted in better responses; however,

on complex tasks requiring considerable learning, impairment of the response was noted in the presence of others. The presence of others is detrimental when initially learning both verbal and motor tasks, but the presence of others serves to facilitate performance once these tasks are well learned. In addition, it is not the mere presence of others that produces social facilitation, it is that the audience or coactors must be perceived as having the potential to evaluate the subject's performance. The impact for coaching is obvious -- if an individual becomes nervous or disorganized in motor patterns in the presence of others, emphasize and establish a nonevaluative situation; however, when wishing to facilitate a performance that is well learned, the presence of an evaluative audience is desirable.

2. Concept:

The coaction effect, that of having others to do the same thing at the same time and usually in a nonevaluative role, results in the ability to endure more pain and sustain a greater physical effort. Studies of deprivation and of electric shock avoidance conducted on individuals and then in pairs clearly indicate there is greater endurance in pairs. Perhaps for some, the phenomenon can be likened to the cliché "misery loves company," but the fact that perceived sharing contributes to stress tolerance has obvious implications for achieving excellence in sport.

3. Concept:

Arousal or anxiety is a key variable in explaining social facilitation effects. An obvious observation is that there are

levels of anxiety and these are often manifest in athletic performance. There is an optimal level of arousal for the level of task difficulty. When an individual reaches high levels of arousal, perceptual and motor responses are disrupted. It seems likely that moderate increases in arousal will facilitate performance on a well learned task, but continued increases will cause task deterioration. The relationship is known as the inverted U, or the Yerkes Dodson Law. Although an oversimplification, if the performer is low anxious, performance is likely to be poor; as arousal increases and anxiety of the situation increases, performance improves to a point. Beyond the "optimal level" an increased arousal results again in impaired performance.

4. Concept:

A fundamental means for acquiring behavior is by imitation and modeling. Much of this learning is positive but may also be avoidance -- that is, observing behavior which should not be replicated because of the negative consequences which befall the model. Thus poor performance, and socially aberrant behavior on the team may serve as a model of correct behavior for some. Obviously, one does not learn to be a skilled athlete by watching others but modeling does serve an important function in both motor and affective skills.

5. Concept:

Social reinforcement, a form of feedback, influences motor behavior. It is generally agreed that social reinforcers energize or motivate behavior primarily by acquiring incentive

value. Social reinforcers act as cues, thus providing information about the appropriateness of the response. A reinforcer is one of the operations that will increase the response. A positive reinforcer is a stimulus, and when following a response will increase the strength or occurrence of the response (such as a kind word, a pat on the head or monetary reward). A negative reinforcer is a stimulus, the removal of which increases the strength of the response. That is, if positive reinforcement is taken away, it becomes punishment. Praise for a fine play is positive reinforcement, but following a game in which play was equally good and no reinforcement follows, it becomes negative punishment. If a player is berated by the coach, it is positive punishment. If nothing is said after the next play, it becomes negative reward. Incentive is another term frequently used in discussing reinforcement -- it refers to expectation of reward or punishment. The player's expectation is based on previous experience.

Social reinforcers seem to be motivational and motivation is an integral part of learning and performance. A desire to accomplish a task effects control of behavior and this desire is manifested in an individual's interests, attitudes and aspirations.

Contrary to general opinion, social reinforcement seems to have little direct influence when other forms of feedback are available. The role of social reinforcers is beneficial in the absence of other forms of feedback. To be most meaningful, the

reinforcer should be as specific as possible; that is, the more specific the information to the response, the more useful it is. If a coach cannot use social reinforcement, he must surely find methods of feedback to serve the learning needs of performers.

6. Concept:

Rivalry is people oriented and competition is task or goal oriented. More of a social psychological definition than a concept, the importance is obvious. If the focus is on competition the task or goal must be clearly understood and a commitment to the goal must supercede rivalry between individuals. Task orientation seems to minimize destruction rivalry.

7. Concept:

A performer's level of aspiration is a detriment in achieving success or failure. LA is the standard by which a person judges his own performance as a success or a failure, or up to his expectation. One probably evaluates himself on the opinion he holds of himself and the abilities he possesses. These vary from individual to individual and are manifest in interesting ways in athletics. One individual will be distraught and shamed at a defeat where her teammate would suffer no discomfort and may even react as if victory had been hers. These responses reflect the expectancies, or level, of aspiration each held. Some tenents concerning aspiration level -- include the following:

1. Success usually leads to raising the LA; failure results generally in a lowering; however, the effects of failure are more varied for a few successful trials interspersed among a

great number of failure/trials may see the LA remain unchanged or perhaps even rise. Seemingly LA may be a protection for the ego and remain unchanged even in the face of failure. Failure of a consistent type results in decrease of interest and ultimate withdrawal from the task by most of those failing. The coach should make it possible for a player to achieve some degree of success and thus raise aspiration level that might be faltering. The effect of failure is not well understood in coaching but it is unlikely that it is the desired outcome of athlete or coach.

Thus, the development of concepts and best known guesses comes to a close. If time, and your patience, permitted we might take a closer look at the individual variables that are manifest when people deal with people. We would find personality factors, attitude variables, anxiety levels, and aggression levels. We would find inventories, projective tasks, indices, rating scales and numerous ways to assess these human variables. However, we would still have more questions than answers. Let me use but two examples. (1) Personality factors -- we have questionable assessment instruments, yet we know that individual personality is important -- to the individual if no one else. To date, we cannot make clear evaluations of the role personality plays in skilled performance -- in fact, we do not know if personality directs the individual to special sports or if the sport does, in fact, alter personaiity factors. We have evidence that personality changes -- endlessly -- and that personality variables do interact when people deal with people. We cannot say that

our knowledge of personality has made coaching more scientific, more humanistic, or even more meaningful for the individual.

Attitudes, my second example, are only one determinant of behavior. We have some devices for assessing attitudes, but by knowing a person's attitudes we still cannot predict his behavior with a high degree of accuracy. We even have little reason to suspect that mere participation in athletics with a racial mix or a careful planned racial balance will lead to reduction of prejudice.

It is obvious that the solutions and the concepts with which to solve athletic problems have yet to be determined through scientific investigation and humane consideration. We have made great strides toward the development of the physiological and kinesiological science of coaching and we are well on the way toward the development of the humane science for the "ultimate athlete" and for you, "the ultimate coach."

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